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SIR MICHAEL FOSTER

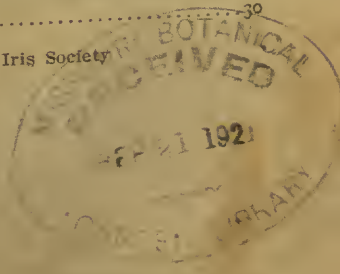
Edited by the Secretary
R. S. STURTEVANT

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Sir Michael Foster

John C. Wister

Sir Michael Foster was born in Huntingdon, England, on March 8, 1836, the eldest son of a surgeon of that town. He was brought up in an atmosphere of fervent nonconformity and of strong radical leanings in politics, was educated at the Huntingdon Grammar School and later in 1848-1852 at University College School in London, where he showed great aptitude for study as well as being captain of the cricket team. In 1854 he commenced to study medicine, and in 1859 received the degree of M. D. at the University in London. After studying in Paris he practiced medicine until 1867 when he became a teacher at the University in London and later in 1869, a Professor of Physiology.

He was a great friend of Huxley, whom he succeeded as Professor at the Royal Society and it was on Huxley's recommendation in 1870 that he was appointed the first Praelector of Physiology at Trinity College, Cambridge where he installed one of the early laboratories, and published many papers and books, including the life of the physiologist, Claude Bernard.

He was married in 1863 but his wife died in 1869, leaving him a son and a daughter. In 1883, he became the first Professor of Physiology at Trinity College, and held that position until 1903. Much of the modern development of biological science in Cambridge University was due to his influence, his breadth of vision that so greatly

extended the scope of the subjects and his method of teaching.

In fact present scientific study of physiology, botany, and morphology in English speaking countries is indebted to him for some of its best features. He wrote many scientific articles and gave scientific lectures, including the inaugural address at the International Medical Congress at Rome in 1894 and a course of lectures in San Francisco in 1900. He founded the Journal of Physiology. From 1900 to 1905 he represented the University in London as a member of Parliament.

After his second marriage in 1872 he built a house on the spur of



Sir Michael Foster, K. C. B.

the Gog—Magog Hills four miles from Cambridge. There, on the bare slope, he laid out his garden, a spot which soon became a favorite afternoon resort for his many friends. This was his chief relaxation, he loved the iris best of all tho he gave much study also to cyclamens, anemones, daffodils, and eremuri and his interest in gardens was so broad that he held the position of Secretary of the Royal Horticultural Society from 1881 to 1903.

His work in life was the result of his keen mental activity and fine character, his idealism combined with practical common sense. His career in both London and Cambridge was brilliant, and his death, January 28, 1907, left uncompleted much work of real value. Altho our knowledge of Sir Michael Foster is perhaps confined to what was his recreation, his study and hybridizing of irises, yet it is well to realize that he had many interests, serious work of broader appeal and yet that in his leisure moments he laid the foundation for the development of the modern iris.

LIST OF IRIS RAISED FROM SEED BY SIR MICHAEL FOSTER AT SHELFORD, ENGLAND BETWEEN 1872 AND 1907.

Name	Parentage	Introducer	Date of introduction
Aurora	Pallida	Wallace	1909
Barbara	Cengialti	"	1913
Blueboy (or Blue Boy)	aphylla	"	1909
Caterina	Cyp. x Pal.	"	1909
Celia	Pal. x Ceng.	"	?
Crusader		"	1913
Foster's Yellow		"	1909
Isola	Pal. x Ceng.	"	1909
John Foster		"	1913
Kashmir White	Cyp.	"	1913
Lady Foster	Cyp. x Pal.	"	1907?
Miss Maggie		"	1910
Miss Willmott	Cyp.	"	1909
Mist	Pal. x Ceng.?	"	1900?
Mrs. Alan Gray	Ceng. x Queen of May	"	1909
Mrs. George Darwin		"	1900?
Mrs. H. Darwin		"	1909
Nine Wells	Tro.	"	1909
Patience	Tro.	"	1909
Penge	Pal. x Ceng.	"	1913
Porcelain	Tro. ?	"	1909
Ring Dove	Pal. x	"	1913
Saracen	Tro. x ?	"	1913
Sarah		"	1909
Shelford Chieftain	Cyp. x Pal.	"	1909
Shelford Yellow		"	1909
Viola	Pal. x Ceng.	"	1913
Dilkush	Iberica x Pal.	Wallace	1909
Dorak	Ib. x (Pal. x Ceng.)	"	1909
Ferakan	Unknown	"	?
Giran	Ib. x Pal.	"	1913
Hamadan	Paradoxa x Pal.	"	1909
Ismali	Ib. x Pal.	"	1909
Lady Lilford	Par. x Pal.	"	?

Nazarin	Pal. x Ib.	Wallace	?
Paracina	Par. x Sambucina	"	1909
Parsam	Par. x Sam.	"	1913
Parvar	Par. x var.	"	1909
Shirin	Ib. x Pal.	"	1913
Shushan	Par.-Ib. x var.	"	1913
The Dove	Ceng. x Lupina	"	1909
Sheraz	Ib. x Pal.	"	1909
Monspur	Monneiri x Spuria	"	?
Shelford Giant	Gigantea x aurea	"	?
Tollong	Tolmiana x longipetala	"	?

Clara Curtis	Cyp. x Pal.	Perry	1911
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(may be Perry seedling)

Sir Dighton Probyn	Oncocyclus x Pogon	"	?
Sir Trevor Lawrence	Onco x Pogon	"	1905

Parsam. (Perry says he introduced this in 1905).

Besides the Onco. hybrids from Dilkush to The Dove Perry offers the following crosses—

Pallida x Iberica.

Paradoxa x Pallida.

Incognita listed by Wallace 1913, may be a Foster seedling.

I am told Foster made but one Monneiri x Spuria cross which was named Monspur.

Forms collected by Foster

Karput, Madonna, Ceng. Loppio.

John C. Wister.

A Letter from Sir Michael Foster to Sereno Watson

WRITTEN JAN. 11, 1890.

In an interesting note in Botanical Gazette XII. p. 99, May, 1887 on "Our 'tripetalous' species of Iris" you show that I. Hookeri has priority as a name for the Canadian tripetalous species. I have several times received plants under the name 'I. tridentata', clearly not specimens of Walther's plant but so identical in all respects with I. setosa (Pallas) that though some of them were said to come from Canada, I thought there must have been some mistake, and that what I had received were simply specimens of the Asian I. setosa.

Two years ago however Mr. James Fletcher of the Agricultural Department, Ottawa, was so very kind as to send me ripe full capsules and living roots of the tripetalous Iris growing at Mark Dalhousie, New Brunswick. The capsule and seed were exactly like the capsule and seed of the Asian I. setosa. In your note you point out the features of the Canadian Iris. I may add that the small dense seed, pyriform or oval except for the very conspicuous raphe is most distinct. Not only is it wholly different from the wedge-shaped seed of I. versicolor (which in turn is almost identical with the European I. pseudacorus, the two plants being the New World and Old World forms of the same type) but

so unlike the seed of other Irises known to me that I think I could always recognise it and detect it mixed with other seed. That of *I. ensata* comes nearest it.

Mr. Fletcher's root flowered with me last summer (1889), and I must confess that I cannot see in it any specific differences from the Asian *I. setosa*. The distinguishing feature of *I. setosa* is the diminished inner perianth segment or standard, in which a very short narrow claw suddenly expands into a minute ala on each side, the two together not reaching the width of 1 cm. and then rapidly narrows to a bristle-like point, the whole segment being only about 1.5 or at most 2 cm. in length. In *I. versicolor* the standards are sometimes small but never so small as this, and moreover are always ovate or ovate-lanceolate.

The Canadian plant differs from what I may perhaps consider as the typical Asian plant, in the standard not narrowing rapidly to a point from the alae, but, after narrowing somewhat, maintaining the same width for a space and then suddenly becoming pointed in the blade of the outer perianth segment being more orbicular in the claw of the same having a more pronounced flange at its base, in the white patch or 'signal' at the junction of the claw and blade being less sharply defined, and in the ovary being more distinctly grooved on the sides. In all these features however except the first, seedlings of the Asian *I. setosa* vary a good deal.

The inflorescence of the Canadian plant was not so full and the foliage not so luxuriant as those of a well-grown Asian plant; but these, I take it, are merely matters of cultivation. The slight, apparently permanent difference noted above, seems to be hardly enough to found a species upon. The Canadian plant is at most a variety and might be called *I. setosa* var. *canadensis*.

I may add that a plant said to come from 'Newfoundland' which my friend Mr. Max Leichlin of Baden Baden gave me appears to be identical with Mr. Fletcher's plant. Both are much more like the Asian *I. setosa* than a plant which I also received from Mr. Max Leichlin, which was said to come from Alaska, and which though really an *I. setosa* more fully perhaps, deserves an independent name than does the Canadian form; and its deep rich purple flowers and tall habit make it a handsome plant.

It is interesting to observe that *I. setosa*, like so many of your North American plants, of Asian origin, has been driven to your eastern seaboard, and nearly pushed out of the country. I can learn no evidence of its existence between Alaska on the west and East Canada. The *I. versicolor* of Canada appears to me wholly identical with the *I. versicolor* of the States but of less luxuriant growth.

Shelford, Cambridge, England.
Jan. 11, 1890.

M. Foster.

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Clarence W. Hubbard

GROWER OF

PEONIES & IRISES

6144 LAKEWOOD AVENUE, CHICAGO, ILL.

An Interview with Sir Michael Foster, K.C.B. at Nine Wells, Great Shelford, England *

Alfred Wilcox.

As there is no higher authority on the cultivation of the iris and no one in this country who has done more for its development than Sir Michael Foster, I asked his permission to visit Nine Wells, his residence in Cambridgeshire, for the purpose of a chat upon a subject which is not only interesting to almost every person who possesses a garden, but seasonable. Nine Wells, which is from three to four miles from Cambridge, is situated nearly on top of a hill, flanking the well-known Gog and Magog Hills and commands a fine view extending over a large area. On my arrival, I had a talk with Sir Michael Foster, and subsequently strolled around the gardens with him. He confessed that the fascination which the topic possesses for him was an inducement to accede to my request, and admitted the truth of the soft impeachment, that he has had a great deal to do with the development of the iris.

The Start in the Seventies.

"But", he continued, "the development of the iris has been a part of the whole development of gardening. It has been known to amateurs for a long time past, but I took up its cultivation somewhat vigorously in the seventies, when I began."

"Did you begin at Great Shelford?"

"Yes, but not in this garden. I came here seven years later. I commenced by growing all the ordinary known forms of the iris, and then I sought to get new forms, or to bring back old forms, obtaining them from the various parts of the world where the plants grow. I was very much helped by the late Dr. Regel, of St. Petersburg, who had, of course, the means of securing a large number of plants from Central Asia, and by Max Leichtlin, of Baden-Baden, and others. Subsequently, I received a great deal of assistance from missionaries, especially the Americans in Asia Minor. I got into correspondence with them, and they sent me a large number of plants, some of which proved to be new and others old. The iris abounds in Central Asia, and in Asia Minor more than anywhere else. I really continued to rely upon missionaries, and other friends in the East, until the leading nurserymen commenced to send collectors into the various regions."

The Conditions at Nine Wells.

"Do you consider that you started under favorable conditions?"

"The conditions of this garden are certainly favorable for some kinds of iris, but they are unfavourable for many others. We are on top of a chalk hill, with a loamy surface soil above the chalk, varying from a few inches to, at most, a foot. Therefore, I have to dig out most of my beds, in order to get an adequate depth of soil—or rather, I should say that I have practically no soil at all. This means, however, that I have an unlimited choice of the soil in which to grow my plants, because I have to obtain it all. The complete drainage of the underlying chalk renders the garden relatively dry in winter; this state of affairs

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is, of course, favourable to most of the rhizomous and bulbous irises, and is especially so to those from Asia Minor and Central Asia. On the other hand, we are very dry in summer, and hence the conditions are most unfavourable for many other varieties of irises."

"Perhaps you would instance those?"

"I find it impossible to grow *Iris Kaempferi*, in spite of my attempts to supply them artificially with moisture. Again, I have great difficulty with the Himalayan irises, which rejoice in moisture, and with nearly all the irises from the New World, such as *virginica*, *cuprea*, *versicolor*, etc."

Experiments in Hybridization.

"When did you begin hybridizing?"

"My first attempts were with the common Bearded Irises. For instance, I crossed a not-quite-typical *Iris variegata*—that is to say, it already had some other blood in it—with a pretty typical *Iris pallida*. From that cross I obtained two hundred or more seedlings, which comprised, among them, many of the old garden forms, often spoken of as German Irises, such as *I. neglecta*, *amoena*, and the like. In fact, I reproduced in one gathering many old recognized forms, as well as some new ones. One of the latter, which has become very popular under the name of Mrs. Horace Darwin, thus came into existence."

"Any other results of crosses with the Bearded Irises would be interesting."

"One was particularly so to me. Out of the light blue *Iris Cengialti*, crossed with the pollen of *Iris Balkana* (which was bronze-purple), I obtained about eighteen seedlings of very varied colours, not only light blue and deep purple, but pure white and several shades of yellow, as well as mixed colours, were represented."

Crosses with the *Oncocyclus*.

"The *Oncocyclus* Irises," continued Sir Michael, "from an early period engaged my special attention, but I must say that, notwithstanding all the care I bestowed on them, I feel that I cannot today grow them more successfully than I did a quarter of a century ago, and of late years, I have very largely limited my hybridizing to this species of *Iris*. I have crossed the *Oncocyclus*, such as *iberica* and the like, among themselves, and have obtained many striking forms. I have also crossed the true *Oncocyclus* Irises with what are called the *Regelia* section, such as *Iris Korolkowi*, and have obtained results somewhat similar to those obtained by Messrs. Tubergen which have attracted so much attention. I have likewise crossed, with moderate success, the *Oncocyclus* and the *Regelia* Irises with the rhizomous Irises. *Iris iberica*, crossed with the pollen of *I. pallida*, or, again, *I. pallida* crossed with the pollen of *I. iberica*, has given me forms, some of them very beautiful, but others less so. In the same way, *I. paradoxa* with *I. pallida*, or with *I. sambucina* or *I. variegata*, has given me some very good results."

"But you have effected many other crossings?"

"Yes; one, *Iris Lorteti*, with *I. pallida*, is especially charming, but a great many are monstrous and ugly. The latter have to be destroyed, or kept only as curiosities. The hybrids between *Oncocyclus* and rhizomous Irises are very sterile, so that in most cases I have not been able to go beyond the first generation. But I have one or two plants of *Iris paradoxa*, crossed with *I. pallida*, which have been carried on to the second or third generation, and which are certainly handsome plants. I have hybridized bulbous Irises, and I raised several interesting

hybrids of *Iris reticulata*, but these I lost through fungus disease, with which, unfortunately, my garden has become very much infected. I have been more fortunate with *Iris xiphium*. I have some beautiful hybrids of this section crossed with *Iris filifolia*, and an interesting *xiphium* crossed with *I. tingitana*. I am looking forward to several interesting hybrids belonging to the Juno section."

Fertilization from Insects.

"Have you had many difficulties owing to fertilization from insects?"

"In hybridizing with the *Oncocyclus* section, I have been very much struck with the freedom I have experienced from fertilization by insects. In hybridizing the Beardless Irises, in which, also, I have done a good deal—raising, for example, *Monspur*, which is a hybrid from *Monnieri* and *spuria*—I had great trouble in preventing fertilization by insects or otherwise, but with the *Oncocyclus* I do not require to take any pains to protect the flowers from insects. I simply remove the anthers as soon as the flowers expand, and put on the pollen as soon as the stigma is ripe. Thus far I have not had any result in which the offspring was the effect of any other pollen than that which I put on."

The Treatment of Seed.

"How have you treated the seed you have obtained from hybridization?"

"In two ways. I have sown it in prepared beds in the open, which has the advantage of giving rise to relatively early germination; I say relatively, because, as I shall show presently, germination may be very slow, and may extend over two, three, or more years. During that time it is difficult to keep the seedling bed free from weeds, and to remove the plants which have germinated, without injuring the seed left behind. Hence, I have been led, chiefly, to adopt the alternative method of sowing the seed in pots. This plan has the recommendation that no seed is lost. The seed from one hybridization is generally scanty, and can be sown in quite a small pot. When a seed has germinated, I replot the seedling, and, at the same time, resow all the seed left behind, for the seed is large enough to be easily sifted out. By this means I am able to keep the seed for almost any length of time."

The Period of Germination.

"Then, as to the period of germination?"

"As a rule, especially with the hybrid seed, but also with the natural seed of *Oncocyclus* Irises, a few—but only a few—of the seeds sown germinate the first year. Rather more may germinate the second year, and, subsequently, germination takes place stragglingly and unequally. I have repeatedly raised seedlings from seed which had been lying in the pots for periods varying from five to ten years. In two cases I have raised seed which has so lain for thirteen and for fifteen years, and I have one case of a seed germinating after it had been in the ground for eighteen years—a kind of *Rip Van Winkle* seed. There are still a dozen or more of that eighteen-year-old seed sound and hard, and, I believe, still germinable. I am wondering whether it or I will come to an end first."

The Importance of Feeding.

"Perhaps you might follow what you have said about germination with some suggestions of cultural treatment."

"As I have already said, I do not think that, so far as the cultivation of *Oncocyclus* Irises is concerned, I am any wiser than I was twenty-five years ago. I still see the advantage of not disturbing them, if they can be kept sufficiently dry in winter; but generally speaking, I take them up in summer, and dry them off, before replanting, to a greater extent than I did in former days. Although I think that they profit by lime, and, therefore, my garden is, in this respect, suitable for them I have not been able to find out that they benefit by any special chemical treatment. I am pretty well convinced, however, that they all gain by being well fed, and that the fears of manure being injurious to them are quite groundless. It is, of course, very disappointing, now and again they go wrong and disappear. But though I have tried my utmost to ascertain what is really the cause, I have not yet succeeded. The ordinary rhizomous Irises do not want any care at all—they survive the most cruel and injurious treatment. As a rule, I divide them, when they have to be moved, directly after flowering. With precautions as to moisture, after replanting, they lay well hold of the ground during summer and autumn, and become strong plants in the ensuing spring. Some of the broad-leaved Bearded Irises, especially those having variegata blood in them, grow very rapidly, and clumps become bare in the middle. It becomes necessary to divide these after a while, but I always put the process off as long as I can, helping the central bare portions by covering them with a little earth".

Varieties for Amateurs.

"Now I should like to know of the easier varieties for amateurs to grow".

"My own experience is that in my dry ground I can grow all the Bearded Irises without difficulty, and most, though not all, of the bulbous. *Iris xiphium* (the Spanish Iris) is grown without difficulty, and flowers freely; *Iris xiphioides* (the English Iris), on the contrary, gives me great trouble. I can only keep it alive by continually replanting it in a specially-prepared bed. It wants more moisture and more humus than I can give it here. I have also some difficulty with *Iris persica* and the allied forms; these are very apt to die out, and, as I think I indicated, the *reticulata* group gave me great trouble owing to the amount of the fungus which has somehow or other got into my garden. But with most of the other bulbous Iris I have little difficulty, and I raise a large number of these by seed. I have a very good stock of *Iris Rosenbachiana*, which varies extremely in brightness of colour and in size of flower. Some of the forms are very poor, but others are remarkably beautiful. Though I, myself, have trouble in growing many of the narrow-leaved Beardless Irises, the owner of gardens having different physical conditions to my own will possibly find them very easily grown."

The Need of Sunshine.

"I suppose sunshine is a factor in achieving success?"

"I think I may say of all Irises that, whether they want water at their feet or not, they need sun over their heads if they are to flower properly. I do not know one variety which does not flower more freely in the sun than in the shade, though, of course, when they flower in the shade the bloom lasts longer. There is, perhaps one exception—I mean *Iris foetidissima*, which certainly thrives best in partial shade, but it has no great beauty save its red seed in autumn and winter. One large yellow form which I have, and which came from Italy, is not without merit".

The Duration of the Flowering Season.

"How long does the flowering season usually last?"

"It begins in January, when the earlier forms of the Reticulata group commence to bloom. These are steadily followed during the latter part of the month, February, and March, by the Juno Irises, *I. orchoides* and *I. bucharica* being the last of these. In company with the latter, *Iris tuberosa*, or what the Italians call 'The Widow', flowers very freely. The Bearded Irises begin to bloom here in early April, the *Pumila* section being first; and then, from the end of April and during May, comes the great rush, provided the season be not very late. Most of the *Oncocyclus* and *Regelia* Irises are at their best in the latter end of May or the beginning of June. At the same time, the ordinary Bearded Irises and the *Xiphium* section, as well as the Beardless Irises, are coming out, and carry one on through June. In July they begin to thin out, and towards the middle of the month the last of my Beardless Irises, *Monnieri*, gives its final bloom. Then there is a pause, and for the rest of the year I hardly get any blooms. Some of the *Pallida* section give me a second supply of flowers, but *Iris alata*, which ought to bloom in October or November, will not grow here, nor yet the little bulbous *Iris Vartani*, which flowers in November, but which I cannot keep alive for more than two years in succession, while *Iris stylosa*, which in the southern countries, flowers abundantly in late autumn and early winter, rarely shows buds with me until after Christmas. I am practically bare of Irises in the open garden during the second half of the year".

"And under glass?"

"I grow a small quantity under glass, but they are chiefly for the purpose of hybridisation. By growing them under glass, I get them in an early condition, and therefore can cross them with some that would otherwise not be growing at the same time."

As we went round the garden, I noticed a bed of healthy-looking Carnations, and I asked Sir Michael whether he devoted much attention to any other plant.

"I have a few good Tea Roses, and have been going in for *Eremurus* very largely in the last few years. I raised them from seed, and get different forms. But my special attention is limited to irises; any other things are quite secondary."

The evidences of the special attention to Irises are very abundant. There are beds in all stages of growth, and endless varieties; some exposed, and others sheltered; some on the terraces, and others on the flat; some in seedling pots, all marked according to the time they were sown; and others in the greenhouse. Before I came away from Nine Wells, I had the pleasure of seeing the plant which germinated at the expiration of eighteen years, while in the conservatory were two pots of *Iris stylosa* in flower on January 19th.

What Our Gardens Owe to His Work

R. S. Sturtevant.

A mere glance at the parentage of the varieties raised by Sir Michael Foster, a realization of the fact that he was practically the first to use Cengialti, trojana, and cypriana among the Bearded Irises and the first that we know of to combine the pogoniris with the regelias and oncocyclus is enough to reveal his indirect influence on the novelties of today. His work made possible Mr. Dykes' splendid monograph, *The Genus Iris*, even more directly he encouraged W. J. Caparne to whom we owe practically the entire race of Intermediates, and when we consider the botanical confusion in the nomenclature of cypriana, mesopotamica, and Ricardi we can fully appreciate just what his introduction of certain species has meant to present day breeders. The Vilmorin introductions to be sure, show a considerable percentage of Amas blood, but on the other hand consider Mr. Yeld's Lord of June, Neptune, Asia and Prospero, if I am not mistaken, Miss Sturtevant's Avalon, Queen Caternia, Reverie, and many more, Dusk, one of Mr. Morrison's first introductions, and Lent A. Williamson. All these trace to either Trojana or cypriana, and M. Denis' Arsace, Leverrier, and Mme. Durande to Ricardi while I rather expect to find a trace of Ricardi in Ambassadeur, Magnifica, and Ballerine. The fact that Mr. Bliss' Dominion Race has the character of Lent A. Williamson makes probable a similar heredity there as well.

With this brief statement of the giants of to-day let us see just where we would place Sir Michael Foster's irises in our present rating and let us consider the varieties not individually but in groups according to their parentage.

I wish to speak first of the least of these, the Cengialti hybrids. Typically they are (in my garden) a few days earlier to bloom than most varieties; in this they are like Barbara and Mr. Bliss' recently introduced Speedwell both of aphylla blood; they are good growers, free-blooming, rather like small pallidas and in shape Mrs. Alan Gray and Viola, the only two that stand forth in my memory might be taken as examples of distinct forms. The first has a fairly stocky stalk, its flowers rounded in form and the two so well-proportioned as to be almost ideal, the color happens to be unparalleled for its season. In Viola and others of its type, there is rich color, usually distinctively slender growth, and flowers of good substance, not large, but very charming with their flaring falls.

Of the Trojana seedlings as given; Porcelain shows few earmarks of its family and is in no way remarkable; Patience I have always liked, it is small but very floriferous, well-branched and until recently was the only one of that dull blended, but rich, lavender tone; Nine Wells is a favorite of mine, a distinctive tall rich lavender bi-color; and Saracen is good, but so much of the type of Emir, Sarpedon and others that I can no longer call it distinct. Altho Ringdove is credited to the pallidas, its splendid branching makes me think of trojana also because of its narrow segments and unusual coloring,—certainly it is of its own kind alone with little trace in the flower of true pallida characteristics.

The cypriana seedlings have long ranked the highest, the current discussion in the Flower Grower about Caterina is a sure sign of its place in our gardens; Crusader and Lady Foster as well have attained far higher rank than their flexuous stems (under some conditions) and

their slow growth really merit. I, at least, value them only as fore-runners of the finer things. Shelford Chieftain is rather close to the type and is now surpassed by Lord of June without much doubt, and though both Kashmir White and Miss Willmott are said to be of this strain, they show a form of flowers practically never found among cypriana seedlings, an unusually leathery texture to the petals (a very rare character) and a manner of branching approaching pallida. It is unfortunate that they prove of such slow growth in many parts of the country as even the variably washed white of Miss Willmott is well-worth possessing. These were originally listed as seedlings of Kashmiriana but both M. Denis and Mr. Dykes, from their experiments, claim this to be a mistake.

In these groups we find four variations in the texture of the flower, the Cengialtis are very similar to the pallidas in this respect, the Trojanas are coarser, more like Amas and the other germanicas, the Kashmirianas very heavy and smooth, and the cyprianas as a rule have a sheen that gives real beauty.

Of the varieties of other or unknown parentage there are two dwarfs; John Foster a thrifty but delicate looking plant of great charm, and Sarah of unbelievably slow growth but good size and heavy texture; then there are two yellows, Foster's Yellow which though not over two feet is a nice clear tint and Shelford Yellow which is a bit deeper but often shows venation; and two whites, the popular Mrs. Horace Darwin, and the taller but poorer growing Mrs. George Darwin which is of slight account.

Of the oncocyclus hybrids I can speak with but little authority, I have seen and grown a majority of them, but they do not appreciate my company and I wait in vain to see a sturdy mass of their rich, somber-hued flowers. The plants are low, the leaves often sickle-shaped and sparse in growth, and in flower form the varieties fall into two groups;—the one, of which Parvar might be cited as an example, has star-shaped horizontal falls and narrow standards, in the other, Dilkush, the standards are large, the whole flower more like Susiana. In some, the standards are heavily netted with veins, dark on a light-ground, in others clear toned, but almost invariably there is a dark signal blotch at the beard and the coloring has a wonderful depth and richness. It is a great pity that this group should not be more favorably grown and known in many gardens. It ought to succeed in California.

The apogons raised by Sir Michael Foster, like their parents should have a place in every garden, they extend our iris season, and their bold growth and foliage proves a welcome contrast with other perennials.

There are few of you who do not grow at least one of the varieties raised by Sir Michael Foster and I hope that henceforth that each time you show their beauties to your friends you will take time to mention their origin, it will give you a personal interest and the kindly, generous spirit and enthusiasm of Sir Michael Foster can be passed on to iris lovers thru his productions.

Letter from W. J. Caparne to Mr. Wister

December 1920

Dear Sir:

I take pleasure in replying to your letter and I should like to congratulate you on having a Society which honors and supports so worthy a subject as the Iris.

Perhaps it will not be amiss if I tell how iris came to be connected with my name, tho in a sense that is of no consequence. Most of my activities in life are the result of ideals born at quite early periods and after greater or less stages of 'double trenching' have one after another come to the surface and grown and blossomed with interest, satisfaction and some success. The word Iris always flamed up in my mind, from the days when wandering among them I used to pull down the stems to smell of the flowers and later it became a passion to try and illustrate them, a passion which I began to carry out as soon as I possessed a garden. Happily for me a great revival then was occurring to bring herbaceous and other plants to notice and to induce an intelligent interest in the garden to replace the streaks and bands, rounds and squares of this, that, and the other color which monopolized the ground and its master's taste together, and amongst them Irises took a first place with that splendid enthusiast Peter Barr to exhibit, collect, and distribute them. He, with of course others, did a grand work and in conjunction with the equally ardent propaganda of William Robinson in the Garden and Garden Illustrated papers, gave new life to the horticultural world, which materially helped to the advancement of today. My pictures pleased Dr. Foster (since Sir Michael Foster) who was the classical authority and great exponent of the subject and with visits to his home at Great Shelford and his unbounded kindness, my Iris knowledge began to grow apace and he commenced to send me, as they flowered, whatever he had of interest in species, or new hybrids and types worth illustrating, together with many plants for my collection, and as I was an ardent hybridist as keen on colors as on plants, rather with the artist in that matter than with the scientist, I had unrivaled opportunity for crossing. No pollen from any flower sent me was wasted if I had anything on which to try it; this would not please a scientist who wants chapter and verse for everything whilst I asked for beauty only, of form, color, and habit, and where a species was nigardly with only one flower, or so, to produce more; or when the season of flowering was short, to prolong it; in short whatever I deemed desirable to amend the position. Other keen Iridists came in and helped; Rev. Henry Ewbank sent me in a tin box an enormous bloom of Iris Lorteti and again in a bigger box Iris Gatesi, whose like I have never seen again, but both are down amongst my pictures. Dr. Graff, too, so kindly sent me oncocylus; these more normal served to glorify the others and to give high rank to their possibilities. I could never grow the oncocylus myself, but the regelias were fertile, amenable if dug up for the summer, kept dry in the greenhouse and planted again in gravel or ashed soil in October, they increased at a great rate. My soil was clay and oolite limestone, and the majority did well; many so well that I have never seen their like since—liars all, some would say of these pictures, but when I came to Guernsey from this cold midland (Northants) I happened on a small field with a soil well trenched and sanded, warm,

clean and delightful; the plants reveled in it and a great improvement set in in colour—the warm oranges, reds, yellows and browns and bronzes took on rich tones which were a treat, and others slow to bloom came up apace, and I never saw such a show. Happily I have pictorial reminders of it for, alas, they had to go and the bit of ground is again covered with bushes and mortar. The nearest field available was another cold clay again, my weeders had disliked caring for my labels so sent the boy of the party round to collect them in a heap; after that, as the majority did not bloom there again, I never knew where anything was; then another move, no better soil or result; then another, peat; there I am now on the cliffs, and here they do not get enough food to produce flowering rhizomes. This completes the history of the plants to date.

Thanks are due to you sir, for the trouble you have taken in enumerating the varieties I had sufficient stock of to list when trying to make the subject pay some of its costs under the commercial title of this old sheet of paper, (The Iris Plant and Bulb Co.) but it wouldn't, and therefore came to end in conjunction with the misfortune shown above, but please allow me to say that I am just as much interested as ever in them and my notes of plants which bloomed, but did not get listed still amuse me and show there is encouragement for members of your Society. May I recall a plant eight inches high, flower four inches in diameter, standards pure white, falls pure rose: another hybrid of Korolkowi, standards ivory, falls warm pink with ivory tinge; a third, standards white, falls clear satin emerald green like the wing of the hair-streak butterfly; another; standards, white, falls cobalt blue and purple shot. The waifs and strays of them all now help to decorate my cliff side ever and anon; a few of them show courage and color, keep hope alive, and look after themselves for I try to arrange my place as if every thing occurred there naturally, a system which is pleasant, but has obvious drawbacks from a cultivator's point of view. Our thousands of mice of various species, vegetarians all, and rats, smell out the delicious scented rhizomes of some, the stealable and portable nature of others, and the irises tend to lose their best and yet are never killed, while an army of snails and slugs all do their part, and as a cat at a plate, best first is the rule, which they practice with an intelligence which is enviable,—we are apt to overlook or depreciate the knowledge of wild things which has no relation whatever to their size or shape, but is of its kind as good as ours any day though it does land some of them underfoot. The end of December here as I write finds me surrounded with blooming furze, a few campion, wild radish etc., and foxgloves still in bloom, nasturtiums disheveled by gales still all green, and I saw yesterday a tall holyhock with its many flowers still in full beauty. What a chance you will say for Iberica, Susiana, Helenae and the others, but no, every oncocyclus was killed out and eaten up by the second winter, the rest wise in their generation know that it will be abominable in February and so stop silent and asleep, the variegatas all get their possible blooms drilled out and no one would ever suspect what virtue lies around had it but the chance to thrive.

I should like to suggest to your hybridists the values of certain plants for their work; for dwarf plants, Iris Mellita, arenaria, rubra, marginata, Balkana, this latter has great possibilities both for color and form. Something ought to be done with cristata and its friend verna and with others of the North American species which as far as I know want a garden constitution and a break in colour. People frankly don't believe me when I say there is Gatesi in Ivorine and Empress, but both spots and streaks are occasionally in them. I. Kashmiriana and its var. persica are both excellent, though not hardy, and have

helped in the Intermediates. It has always been a grief to me that these latter are obstinately neutral and decline children with modern insistence. At the same time it should be noticed that bimorphism, separation of sire principles, seems a growing factor, so that a plant having no pollen or having deformed anthers has often excellent stygmas and is good for seed and vice versa, while the one with abundant pollen has shriveled stygmas with no moist surface to them, an absolute essential; in others, particular pollen grains will often grow farther than they were intended and so a large flower can often be fertilized with a small one's pollen. It is needless to remark that a green house is an essential to link up early and late flowers though they do not care for forcing, and the variegatas, that most desirable group are scarcely advanced a day by green house heat (here at any rate) for the joy of life outdoors in May and June makes the others ramp and catch up so fast, but it is good for selective purposes. As regards assistance from passing insects it is well to snip off the blade of the fall when you have fertilized a flower, not too far perhaps, for I think there is something in the tightly rolled up petals which may be a necessity for fruiting.

It may be interesting to your Society to know that none of these irises are "Guernsey Irises" they were all raised in Northamptonshire when I was an assistant master in the Crocus Company's School at Arundle and when Shelford was accessible. Circumstances brought me to Guernsey and the never ending wonders of this place combined with the spectacle of its flower-growing industry in beautiful surroundings have kept me painting in it ever since with the result that the records of its flower producing sights, its climatic developments of exotic trees and shrubs from remote parts of the earth, its Himalayan Rhododendrons, New Zealand evergreens and even semi-tropical plants are transferred to pictures in a great collection.



Field at Verrieres, Magnifica in the Foreground.

Vilmorin's Orchid-flowered Irises

S. Mottet.

Garden Irises have always been highly esteemed in the Vilmorin family. The late M. Henry de Vilmorin had enlarged the collection left by his father with all the varieties he could obtain bringing the total to over two hundred named varieties (not counting many seedlings) in 1899, the year of his death. His son, M. Philippe de Vilmorin who had inherited the taste of his ancestors for this beautiful flower, found ready at hand the best materials to work from and soon decided to carry on the improvement that his father had begun. Judging from the size of the flowers of some of the wild species such as *Amas* (syn. *asiatica*), *trojana*, and *cypriana* which are all of a blue tone what could be achieved by passing into them some of the other colors, he tried first to do by crossing them with different varieties; some of them, selfed, were also sown.

The results of his first attempts and the parentage of some of the best novelties are described by himself in a paper (published in the *Revue Horticole*, 1908, p. 544,*) in which he speaks of both his and his father's work. *Diane*, *Loute*, *Isoline*, *Alcazar*, *Barbe Bleue*, *Oriflamme*, and *Goliath* were cited and *Isoline* and *Diane* very accurately reproduced natural size in a beautiful colored plate. Many of these first varieties put on the market by the firm are now well-known in America and need no comment as to their value. In that paper M. de Vilmorin notes that the whole collection of Victor Verdier, who had been one of the most famous raisers of garden irises, had been purchased by his firm in 1903. This collection consisted of about two hundred named varieties, out of which some one hundred and fifty had been raised and named by Verdier himself. Most of these varieties have been added to the general collection grown at Verrières; only a few of inferior merit were dropped. The best of that collection such as *Prosper Laugier*, *Edouard Michel*, *Nuée d'orage*, *Jeanne d'Arc*, *Parc de Neuilly*, and *La Neige* have been introduced along with the Vilmorin varieties and have found their way to America where their names often appear in reports. It is needless to speak longer of these pioneers of the 'orchid flower' series to which I am now coming, for it has been my privilege to assist M. de Vilmorin in raising these very fine varieties which have so successfully fulfilled the plans that he had laid out for himself. I know the work it has involved, for many hundred seedlings have been thrown away that would have delighted many people.

Once the blood of the large flowering varieties alluded to above was passed into the new strain and a sufficient mixture of colors obtained, crosses were given up as it was found that selfed varieties gave a scope of variation quite as wide and sometimes better than direct crosses. Some other varieties were also sown with some success.

From that time, some fifteen years ago, the greatest care has been given to the choice of seedlings; one standard has been used in the selection of seedlings from the many thousands that have been raised in the course of years and that standard is, large size of flower, good substance to the petals, fine colour, and vigour and hardiness of the plant.

It would take too long to list all the varieties which have been raised and named at Verrières and added to the collection; only a few have been discarded afterwards and the total reaches nearly one hun-

*We hope to reprint this article at a later date. —Ed.

dred. It will be sufficient, I think, to name those varieties which have been sent to the trade and the years in which they were raised and introduced in brackets like this (1909-1918) and to describe only the more recent introductions.

Certif. means that the plant has won a Certificate of Merit from the Société nationale d'horticulture de France and the year,—its name and description being thus registered in that year.

Alcazar. (1905-1910) Certif. 1909.

Ambassadeur. (1909-1920) Certif. 1918. A strong and tall plant, with stalks nearly 3 ft. high and large flowers of very good substance, the falls broadly spreading and of a dark velvety color somewhat on the style of Jacquesiana. It is considered one of the finest irises raised at Verrières and a great advance upon similar ones in the squalens and neighboring sections.

Ambigu. (1909-1916) Certif. 1918. A semi-dwarf and semi-early plant with flowers of reddish purple.

Archeveque. (1903-1911).

Ballerine. (1907-1920) Certif. 1910. A vigorous plant, whose tall and branching stems reach over three feet. The flowers which are among the largest of the pallidas measure 5.2 inches from tip to tip of the segments. They are a self blue-violet with falls of a deeper shade, the standards large, rounded and somewhat frilled at the edges. It is among the strongest scented of varieties and altogether a splendid plant.

Caprice. (1898-1904).

Candelabre. (1903-1909).

Cherubin. (1902-1911).

Cluny. (1910-1920) Certif. 1918. Tall and early pallida, 40 inches with flowers of large size, almost self blue-lilac and long falls slightly deeper in color.

Dejazet. (1906-1914) Certif. 1918.

Diane. (1902-1911) Certif. 1914.

Eldorado. (1905-1910) Certif. 1909.

Grevin. (1908-1920).—A semi-dwarf (27 inches) and semi-late variety with strong stems and very large flowers of deep purple, the standards shaded yellow.

Isoline. (1898-1904) Certif. 1905.

Loute. (1897-1904) Certif. 1905.

Magnifica. (1908-1920) Certif. 1914. The largest flowered iris ever raised at Verrières and a very strong plant with large and glaucous foliage; stems tall (4 ft.), flowers over six inches from tip to tip and of a violet-blue tone, the falls long and of a deeper color than the standards which are also large and very rounded; they are sweetly scented and open in mid-season. An exceptionally fine plant.

Médrano (1908-1920).—A semi-dwarf and semi-early variety with good sized flowers of a bronzy claret colour.

Miriam. (1898-1904) Certif. 1905.

Molière. (1909-1920) Certif. 1918. An early and semi-dwarf variety with large purple flowers, the falls dark and velvety, the style branches broad and yellowish.

Monsignor. (1903-1907) Certif. 1909.

Opera. (1906-1916) Certif. 1914.

Oriflamme. (1903-1907) Certif. 1905.

Parisiana. (1906-1911) Certif. 1910.

Raffet. (1903-1920). One of the latest to flower, a semi-dwarf with flowers of nearly pure blue and long segments.

Tamerlan. (1898-1904).

Trianon. (1906-1921) Certif. 1918. A semi-late and semi-dwarf

variety with flowers of only moderate size but of a very delicate colour, difficult to describe because a mixture of yellow, purple, and blue; the standards may be said to be of a very light salmon (isabelle) tone, while the falls are yellow washed with blue, almost unique among irises.

Turco. (1913-1921). Semi-dwarf and semi-late with medium flowers, the standards rosy-lilac, the falls yellow washed with blue.

These last two varieties have been introduced chiefly on account of their fresh and uncommon color.

This list does not, of course, bring to a close the number of new varieties raised at Verrières. There are many others, some of which have been exhibited or much admired at the grounds by American visitors. Although it is too soon to speak of them, as they are not sufficiently tested or propagated, one of them, *Alliés* may be cited, not only because of its fine colour, but more especially perhaps for the fact that it has flowered in the fall for three successive years. Flowers are sometimes produced in the autumn but only occasionally, although some varieties show a more or less marked tendency to do so. Will *Alliés* be the first step towards a twice flowering strain?

I do not know yet what the best new varieties, such as *Dominion*, *Lord of June* and others about which the press speaks very highly really are, but I think the above can compete with any of them. If size alone is considered, few can produce a larger flower than *Magnifica*, few have a better way of standing up than *Ambassadeur* and this is still further enhanced by its size, fine colour, and height and strength of scape. Then to people who are fond of sweet scented varieties I would recommend *Ballerine* for a comparison, since besides its scent it has size and color. Of the colours themselves it is best not to speak as an appreciation of them depends chiefly upon individual taste; one may call dull a color that another declares lovely. Unfortunately some colours are still deficient in that new series of 'Orchid flowering' irises and among them pure white and yellow,—the *variegata* and *Flavescens* do not seem to cross easily with *macrantha*.

Judging from the figures cited above readers may be surprised at the number of years that have elapsed between the time the variety was raised and the year it was sent out.

This may be explained; 1, by the two to four years a seedling may take to bloom; 2, by the time it may take to fix its characteristics. For a new iris as well as in other plants, may not show its real value at first, there is always a period of uncertainty during which it may improve or grow worse and this may last for some years during which the raiser has to observe his new plants very carefully. Some of the finest varieties of the above list were not much more striking than others when first selected in the seed bed. It is only after they were established that their great superiority became evident. The reverse was true with others that were accordingly abandoned.

Altogether raising seedlings for introduction may take from eight to twelve years, sometimes more, and it involves a large amount of work.

Note. The reason why any variety can produce forms so widely varying that they can be classed in another section, is possibly due to the fact, admitted by many a botanist, that there are but two good and pure species in the group of the so-called *germanicas*, viz. *I. pallida* and *I. variegata*; the others would be mere garden forms and thus vary more or less widely. It explains how easy it was for the first hybridists to get new things and how difficult it is now to obtain better ones.

Visits to Iris Nurseries and Gardens

By John C. Wister.

I have been requested to supplement the notes which I wrote on my visits to French and English Iris Gardens with an account of some American Iris Nurseries and Gardens and I have placed here some very fragmentary recollections of some of the many places I have visited.

Wyomissing Nursery Co., Wyomissing, Pa. All lovers of Iris have either already visited Mr. Farr's Nursery or intend to as soon as possible. I have gone there for nearly ten years, not only to see Iris but to see Peonies, Lilacs and other flowers. In the old days the Iris were massed directly outside of the office and greenhouse and it was here that I learned to know many of the older varieties. The field here, however, has long since been made into building lots and the Iris have been moved further away. In 1917 the Irises were particularly beautiful on the big slopes of the farm hillside above the Peony Exhibition Garden; I have never seen anywhere else such magnificent masses of color. This year Mr. Farr has a new field containing 98,000 Iris plants, which show what magnificent work has been done in the Farr Nursery in the last few years in roguing out misfits. I do not believe that in the entire field of 98,000 we found ten flowers which were not true to name. People who criticise nurserymen because varieties are sometimes received untrue to description do not realize what a tremendous piece of work it is to prevent these mixups,—careless workmen will drop plants in the wrong row and the lazy workman will sometimes dig from the one side of the field rather than cross the field.

Mr. Farr was the first man in America to have a big Iris collection and his collection still contains many of the old varieties which we, as members of the Iris Society, consider no longer desirable. It is a pleasure therefore to know that he intends to cut down very greatly on the number of varieties he catalogs, varieties that are now no longer in the running on account of the great strides of introduction in the last ten years.

The Farr seedlings are too well known to need comment. I heard them criticised abroad as not being large enough, but certainly in my garden they have been very constant bloomers which many of the foreign plants have never been. I have always considered "Quaker Lady" as the finest Farr variety, followed closely by Juniata, Mt. Penn, Pocahontas, and Mary Garden. His new seedlings which are not yet widely known are of very high quality and no one can make a mistake in getting Georgia, Mary Orth, or Seminole. Besides the named varieties I saw literally thousands of seedlings being tested, and among them are several of great promise; one a plicata with a flower five inches high standing on a four foot stalk. I think Mr. Farr can be relied upon to give us good seedlings year by year, as he is working on such a large scale and as his judgment is constantly becoming more critical.

Wing Seed Company, Mechanicsburg, Ohio. In company with Mr. Farr, Mr. Norton, and Mr. Presby I went to Mechanicsburg on May 21st. We were all surprised at the great size of the Iris plantations in a year when most irises were blooming sparsely. Like Wyomissing, Mechanicsburg is in a rolling country and the fields were a beautiful sight and remarkably free from weeds when the labor conditions of the past few years are considered. The most interesting thing to a

visitor was the small Test Garden which is arranged alphabetically with three plants of a variety. This is the most convenient place to study Iris which I have ever visited and I wish that every nurseryman would arrange their Iris in the same way because it saves endless tramping over fields.

Mr. Wing also has grown a number of seedlings but has nothing yet which he will name. We saw among the standard varieties a number of the latest novelties among which were some of the Bliss seedlings, most of which, as in other places, have not yet proved themselves as valuable in this country as they have in Europe.

Van Wert Iris Garden, Van Wert, Ohio, May 23, 1921. The Van Wert Iris Gardens have been but lately established by Mr. Bonnewitz and are much smaller than the places described above. The Iris collection, however, is probably the largest in America as Mr. Bonnewitz has taken the trouble to buy every variety that he could find and it is therefore a splendid place to study synonyms. Mr. Bonnewitz and I were able to check up quite a number of varieties which are masquerading under five or six different names. It is quite evident that the people whose Iris collections are founded on Farr collections are using a different set of names from those that are founded on the Harrison collection in Nebraska which probably means that the Harrison plants originally came from Holland, where so many new names were given to old Iris. Mr. Bonnewitz's Garden is an ideal place to study Iris because no variety is labeled by name but merely by number. It is therefore a guessing contest to see how much each visitor knows. I certainly hope I do not come at the bottom of the class.

One of the Iris which stood out prominently in the garden puzzled us quite a while, and on looking it up in the book we found it was Cluny, one of the new Vilmorin varieties. Souv. de Mme. de Gaudichau was in bloom, but I missed Dominion which opened a few days later. Anyone who wishes to study the old Irises together with the new can find no better place than Van Wert, as the whole collection is contained within the comfortable compass of an acre or two.

Peterson Nursery Company, Chicago, Ill. The Iris collection at the Peterson Nursery is unique in its small size and very high quality for Mr. Peterson has judged varieties more carefully and seriously than most of us care to do and grows only forty or fifty varieties, each of which must be distinct, of good size, and, above all, free flowering. There are practically no old varieties in the nursery, and the modern varieties, particularly those of Goos and Koeneman, are well represented. Nearly all of the Vilmorin introductions of 1920 were in bloom and gave great promise of being valuable. Of this set Magnifica is the only weak grower and at present is behaving just like Dominion. Among other sorts Parc de Neuilly made a magnificent mass and it seems strange that it is not known in more places. Mr. Peterson had in bloom a long row of seedlings from which he has selected about a dozen for further trial. The superb condition of the nursery excites comment from all visitors.

Rainbow Iris Gardens, St. Paul, Minn., May 28, 1921. The Rainbow Gardens are situated in the hills outside of St. Paul on rich black soil that made me envious, unfortunately the entire collection had been moved in the Summer of 1920 so that there was not much bloom at the time of my visit. The collection of varieties is very extensive and is grown under number as in the Bonnewitz Nursery. Both Mr. and Mrs. Crooks are equally interested in the venture and were among the first to import Iris from Wallace, and are offering this year a num-

ber of the newer Perry varieties. They say that in spite of the cold climate Japanese Iris flourish well with them which would seem to indicate that those who consider this group tender are mistaken.

Fryer Nursery, Mantorville, Minn., May 28, 1921. Mr. Kenning and Mr. Crooks accompanied me to Mantorville on the afternoon of May 28th. We were met at the station by Mr. Fryer who drove us some miles to his nursery. I had expected to find Irises on one of the bleak wind swept hills of Minnesota but was pleasantly surprised to find a most beautiful collection of evergreens, all of which had been planted by Mr. Fryer about twenty years ago. I have never seen a finer example of thick wind breaks of White Pine, Spruce, and Balsam and the effect that such plantings give to a garden. We saw a splendid specimen of *Rhododendron Catawbiense* in bloom,—I did not suppose there was any place in the Northwest where this would grow. Mr. Fryer has sent in to the trade more Iris novelties in the past few years than any other American Nurseryman and among them unfortunately have been many which Eastern gardeners have proclaimed no better than some of the older types. His garden like many others this year has suffered from late frost and we did not see representative blooms on many varieties, but of the Fryer seedlings Mrs. W. E. Fryer and Kathryn Fryer pleased me the most. They are both exceedingly rich in color.

Mr Fryer's soil is very good and the views from his hilltop over the rolling Minnesota prairie are magnificent. It is an inspiration to visit a place so well planted and I wish I had time here to write in detail of the many kinds of conifers which grew there.

Dean Iris Garden, Moneta, Calif. It has not been my good fortune to visit Mrs. Dean in the spring time, but when I was there in December, 1915 quite a number of Iris were in bloom. The blue and white *stylosa* predominated and with them many flowers of *Crimson King* and a few blooms of other varieties. Mrs. Dean's garden at that time was about an acre in extent and contained many varieties which are somewhat troublesome in the East, with *Caterina* her chief specialty.

She has imported many of the *Millet* and *Denis* varieties, some of which are more suited to Southern California than the East. The great increase of popularity of the Iris in California is undoubtedly due to Mrs. Dean.

Bobbink & Atkins. In the big general nurseries of Bobbink & Atkins, at Rutherford, N. J., Irises have always played a prominent part. Mr. Presby and I visited this nursery on June 5th, 1920 and found a good many of the newer varieties in bloom, including *Lady Foster*, *Lent A. William*, *Tamerlane*, etc. The Bobbink & Atkins seedlings are probably not as yet widely distributed. *Wanaque* is the most distinct of them.

Sunnybrook Farm Iris Garden, May 16th, 1921. Mrs. Cleveland has rather recently become known to Iris lovers through her seedlings, first announced in 1920. Mr. Presby and I made the trip down there particularly to see these seedlings, but were rather disappointed as only a few of them were in bloom. Of these *Autocrat*, *Aristocrat*, *Cavalier*, and *May Rose* were quite fine. Her other seedlings were not in bloom, but we were well repaid for the trip by seeing a wonderful mass of *Caterina*, the finest I have ever seen, averaging 42 inches in height. This is a variety with which most of us have great trouble and it is very encouraging to find some one who can grow it well. Mrs. Cleveland had also some fine *Junonia* and a *Crusader* 44 inches high, but her *Lady Foster* was as poor as those in most places, and we could

not understand why she could not succeed with it when she grew Caterina so well.

She had also the finest lot of Alcazar I have ever seen, having purchased her original stock from Dreer the first year it was imported. Rhein Nixe and other Goos & Koeneman varieties were also in splendid display and the great mass of bloom in her garden, which must be almost an acre in extent forms a wonderful picture.

Frank A. Koehler, Camden, N. J. This is not a large nursery but contains a very fine collection of Iris varieties and as Mr. Koehler served his apprenticeship with Goos & Koenemann at the time they were raising some of their first seedlings it is natural to find varieties such as Rhein Nixe, Loreley, Gajus, Fro, Mithras, and others in fine mass. These were in full bloom in early May for the sandy soil of New Jersey makes the Iris season at least two weeks earlier there than it is on the Pennsylvania side of the river.

I was much interested in his seedlings, some of which attracted considerable attention at the Philadelphia show in 1920. This year I was most struck with a very large squalens variety, rather on the order of Nibelungen, and with a rather deep purplish-blue plicata which was remarkable in flowering almost two weeks ahead of all other plicatas, coming in fact earlier than the earliest pallidas such as Brionense. If an early strain of plicatas can be developed to come in between the Germanicas and the Pallidas it will make a great addition to our gardens. I hope that this seedling of Mr. Koehler's may, with the early plicata seedling I saw at Mr. Bliss', prove to be the forerunners of a new race.

Mrs. C. S. McKinney, Madison, N. J. Of all Iris gardens I have ever visited this is probably the most charming, its brilliancy being due to tremendous masses of pallida Dalmatica, accompanied with Aurea, Mme. Chereau, and Mrs. H. Darwin. This gives the whole garden a light and cheerful aspect and against these light varieties the deep tones of Opera, Prosper Laugier, and others show up particularly well. The garden is almost an acre in extent and is cut in half with a long path. There are some grape vines and currants, and some other herbaceous plants, but the Iris predominate throughout. A tremendous clump of sibirica Emperor over 4 ft. tall and about 4 ft. across is one of the attractions at the crossing of two main paths, and near it was a La Neige behind which Mrs. McKinney's seedling White Nymph was blooming. It seems almost identical in color but at least 2 inches higher. I was also pleased with Her Rival and Piquante, both seedlings of great promise.

Mrs. McKinney has followed the practice of burning over her irises each December and believes her freedom from Iris Rot and Iris borer are due to this. If any of her rare varieties are attacked by rot during the summer she lifts them and after cutting out the affected portion dips them in corrosive sublimate at a strength of 1/1000, which is 16 of the ordinary tablets to a bucket of water.

Movilla Gardens, Haverford, Pa. When Mr. James Boyd gave up his private gardens in 1917 he moved his plants out to a strip of ground along the Philadelphia & Western Electric Railway, where fine displays of Iris and Peonies may now be seen. Upon my return to America in 1919 Mr. Boyd asked me to join him and add my collection of Iris to his. As a result we have there now a large number of new varieties which we are testing. A number of the Millet varieties including Cora, Heracles, Tregastel, Tunisie, Savignian, and Yvonne Pellitier, need a further trial, as all of Millet's Irises are more remark-

able for their freedom of bloom than for size, and should it become necessary to discard these we will have felt well repaid for all his varieties we have imported, because we have secured such gems as Souv. de Mme. de Gaudichau, Corrida, Ivanhoe, Atlas, Col. Candelot, and Delicatissima.

A number of the Bliss Irises have bloomed well here, as has the 1920 set of Vilmorin, but the chief displays of color come from the older varieties such as Farr seedlings, Goos & Koeneman's and other modern sorts. Among the newer Farr seedlings Seminole and Swatara are their best.

Like all other Nurseries we have had trouble getting varieties true to name and our particular puzzle this year has been Plumeri which here and in many nurseries is a pink on the order of Garibaldi and Rubella, while in my own garden Plumeri is a variety more on the order of Quaker Lady. I hope some one will tell us which is correct.

Lent A. Williamsom has bloomed freely here, but the new Virginia Moore having been planted very late, did not show any representative bloom.

Glen Road Iris Gardens, Wellesley Farms, Mass. So much has been written of Miss Sturtevant and her seedlings that it hardly seems worth while to give any detailed account of them here. I have never visited the Sturtevant nursery in Barre where most of her stock is grown, but have made several delightful visits to the Glen Road Iris Gardens in and out of Iris season. Part of the garden is situated directly across the road from her house and slopes down to a small pond where there are fine pseudacorus and sibirica varieties. I have written quite often of the Sturtevant seedlings and I consider Afterglow, B. Y. Morrison, Queen Caterina and Shekinah the finest, but there are many other very good ones and this year I was especially struck with Cygnet, a whitish plicata, very tall and large. Another very effective Iris is Mandelay as is the small Premier which has very rich coloring. It is a difficult garden to judge Iris in as there are so many hundreds of seedlings, resembling in this respect Mr. Bliss' patch in England. Besides her own seedlings Miss Sturtevant has all the latest novelties from which to breed and I saw there this year Mr. Bliss' Dominion seedlings, Cardinal and Moa, both of them fine flowers of rich coloring but in spite of what Mr. Bliss says neither of them are to be compared with Dominion.

American Iris Society Trial Gardens. Leaving these, nurseries I would like to tell next about the Iris Society Test Gardens.

The one at Cornell was established long before the Iris Society was formed and therefore was seen this year in full bloom. I spent a long afternoon with Dr. Beal and Mr. Sand in checking up varieties and their descriptions and looking up synonyms. The Cornell collection was assembled from many nurseries and the mix-up in labels is frightful. Hector, for instance, appeared under seven different names. It is quite evident that our small nurseries have brought much of their stock direct from Holland and got a different name each time they imported, and it would appear that the names in most nurseries throughout the country mean very little, particularly in the older varieties, which seem to be hopelessly mixed. There are two different varieties claiming the name of Gypsy Queen; two different Chalcedonicas; while Sambucina masquerades under at least ten different names. It is only by assembling these varieties in a central garden such as Cornell that we can tell which are the synonyms, but it is hard to tell what we should call a synonym and what merely a wrong label. Mr. Sand is at present devoting a great deal of time to studying these Iris varieties and mak-

ing accurate descriptions, and I hope that much important work will come out of it.

The garden at the Bronx having only been established last summer, was not as full of bloom as that of Cornell, but I was surprised at the very large number of varieties which did flower fairly well. Mr. Boynton is in direct charge acting under Dr. Gleason and Mr. Nash. The work here for the present must consist also of eliminating duplicate varieties, and from what we did there in one day this year it seems quite likely that the 500 varieties will speedily dwindle to 300. We have promise of several hundred more varieties for this garden, but our sources of supply of American sorts are pretty nearly exhausted, and the American Iris Society must face the question whether it should import varieties from foreign countries.

PRIVATE GARDENS

Among the larger Private Gardens Mrs. Lloyd's at Haverford is by far the finest. The Iris portion is circular with three different levels so that one can look down on the iris from the top or look up from the bottom. She has all the modern varieties in masses so that they are very effective. Alcazar, Isoline and Lent A. Williamson were particularly fine here this year, and Innocenza made a mass which would lead one to believe it was by far the greatest white variety. It is quite disconcerting to come to a garden of this kind where many of the old varieties are so well grown that they seem fully equal to some of the latest novelties.

Mr. Presby's garden at Montclair is not at all pretentious but he has a number of fine varieties and among them, one very fine seedling which on the day I was there measured 52 inches in height. It has been named Harriet Presby and will undoubtedly be sent out when stock increases.

Dr. Kent's back-yard garden in Newark illustrates what can be done in a very small place for the yard is not more than 30 ft. wide by 50 ft. deep and it is filled absolutely with Irises which are grown in raised borders. Dr. Kent has grown seedlings for many years but has none which he will place on the market. I wish his example might be followed by other Iris seedling raisers who are prone to become too enthusiastic about their own things.

Mr. Kenning's garden in Minneapolis is another small one but contains a number of fine varieties which he is studying very carefully.

Mr. Arny's place in St. Paul is more pretentious but it does not seem big enough to have won as many prizes as he did this year at Minneapolis. His prize winning must be due to his great skill in growing, cutting, and transporting rather than the amount of flowers he has to draw from.

Mr. Williamson in Bluffton has also a very small place, there being hardly a blade of grass left in his garden, every available inch being taken for Iris, most of which are his own seedlings. With his two small daughters he spends every day of the Iris season in his garden cutting stamens in the morning and pollenizing in the afternoon, and when I was there must have had at least 5,000 pods set. He has not more than 20 named varieties and he grows these with hundreds of seedlings of his own which he has kept for some particular reason. Lent A. Williamson has of course made him justly famous and I hope he will continue to be very conservative in judging his seedlings and thus uphold the very high reputation which that flower has brought him. He uses hundreds of flowers of it for pollinating each year and sooner or later should give us some very remarkable seedlings.

Another seedling raiser is B. Y. Morrison of Takoma Park, D. C.

A bed of his seedlings which I saw in 1920' surpassed all Iris seedlings I have ever seen in massing effect. He has saved and named several of these and is keeping others for further hybridizing. His climate is wonderfully adapted for this and he knows Iris very well and many good things should come from his garden in coming years.

It is not necessary, however, to have large collections of fine varieties to get good seedlings, for every once in a while a good one crops out in the least expected place. In many thousands of seedlings that I have seen this year nothing compared with a chance seedling grown by Mrs. Cumblor of Highspire, Pa. She has a small garden beautifully arranged with many flowering shrubs and with Iris varieties in small quantities, but nothing as startling as one magnificent reddish seedling which at once attracted our eye from a distance. I hope it will not be many years before enough stock will be grown to disseminate this, and I hope that encouraged by its success she will not be tempted to place other varieties which are not equally fine upon the market.

In my own garden in Germantown I have made no attempt at display but have placed my Irises in long rows, three plants of a variety on two sides of a grass walk. I have arranged them not by color but according to their originators, having all the Yeld varieties in one place, which are followed by the Dykes varieties, then by those of Hort, Foster, Perry, etc. This gives a good opportunity to see what the different breeders are doing and to note the characteristics of their varieties. One of the characteristics thus noted has been the extreme vigor of all Yeld varieties and the feeble growth of the Hort varieties when grown almost side by side. Of the latter Miranda, a violet blue self, was very fine and attracted much comment. This year Mercutio gave a large flower but on a very short stem.

Of the Perry varieties King George and Perry's Favorite have been the best, both coming with the Intermediates and being very free, and also inclined to bloom in October.

The Bliss varieties here have done poorly with the exception of Dora Logden, Syphax, Tom Tit, Dusky Maid and Tamar. They seem to be more affected by the spring frosts than the varieties of other breeders, and I trust that next year they will give a better showing. No one who has seen them in England can fail to be enthusiastic over them, and I hope it will be just a matter of time before they come to be thoroughly established here and do well. The fact that Dominion after sulking so long bloomed well at London, Ontario, Long Island, Van Wert and Cincinnati should be encouraging.

The best varieties in my garden this year were Lord of June, Halo, and Sarpedon which continued in bloom from the 28th of April until the 19th of May. Oporto, which is still little known, proved to be very rich in color, and Dawn again was very free. Mr. Yeld certainly has every reason to be proud of these seedlings.

Of the Sturtevant varieties here, Magnate, Baronet, Mandelay, Cordons Bleu, and Fantasy bloomed very well and should win prominent places on this year's showing.

I have already commented upon Millet varieties at Movilla Gardens. I have them here planted next to Denis's set and they have bloomed extremely freely which Denis's have not.

Of the Denis varieties Jussieu, Mme. Chobaut and Mme. Boulet are three beauties but are very much alike.

The Oncocyclis hybrids bloomed better this year than I have ever seen them, Dilkush, Parvar and Zwanenburg being particularly free and lasting a long time. Heretofore they had always been rather shy, but the season which was unfavorable to other varieties seemed to suit them. Giran, Dorak, Hamadan and Ismaili are all very close to Dilkush so that all these varieties are not needed in a small garden.

Iris as Crude Drug

Helen E. Ricketts.

The Iris has quite a romance apart from that of its life in gardens which is told in brief notes, here and there in the annals of medicine. It has never played a leading part in the great company of drugs, but its role has been a useful and a fanciful one. Tho it is not possible to say with any degree of surety when Iris was first mentioned in the lists of the herbalists and drug clerks, it is known that *I. foetidissima* figured in the medical superstitions of ancient Greece. Tales of dire happenings which occurred when a layman so much as attempted to gather the drugs of that day, seemed to have been circulated by the herbalists to keep their trade exclusive. For instance, it was believed that an offering of honey cake must be made whenever *I. foetidissima* was rooted up, and that the Peony must be gathered at night since the eyes of the herbalist were endangered if a woodpecker witnessed the gathering of the fruit.

Orris Root next comes up for recognition, and we find the peeled rhizomes of *I. florentina* doing duty as teething rings for the infants of various countries, a practice which still prevails in some parts. Tho doctors look upon this with disfavor, Orris Root Fingers may be purchased from almost any druggist today. Later various constituents and properties were assigned to Orris Root which was much in demand medicinally on the Continent for some time. At present, it is valued not so much for the principles it contains and its therapeutic action, as for its odor and suitability for use in tooth pastes and powders, special formulas, perfumery, and in the better grades of cosmetics—toilet powders, various creams and lotions, etc. Orris Oil, distilled from the root, is a favored product. Contrary to the usual belief, Orris Root is not secured entirely from the Florentine Iris but indiscriminately from *I. florentina*, *I. germanica*, and *I. pallida*. Indeed, it is in all probability composed to the greatest extent of the last two, since the latter are more hardy and common in Tuscany, from which most of the root is exported. During the war much interest was aroused in the domestic cultivation of the root, but it is doubtful if much will come of this, since labor costs here are unfavorable and the time necessary (usually three years) for the proper curing of the root to its full fragrance is discouraging to American growers.

Now, comes *I. versicolor*, at present the most prominent of the Iris family, medicinally. The history of Blue Flag—this drug's official name—has been one of ups and downs, first in favor with the profession and then again, discredited as a "quack remedy". Its standing at this time seems uncertain, depending chiefly upon the views of the doctor himself. Some have expressed the belief that it is of coming importance, and I have heard it called a "has been". Still, it seems to me from the preparations on the market and the amount of them used, that it is one of the important native vegetable drugs of its class. Its use certainly does not appear to be decreasing, and the procuring of properly gathered and cured, authentic Blue Flag is a growing problem to manufacturers. By spurious Blue Flag is meant the varieties of Iris other than *versicolor*. Just what these are it is impossible to definitely decide from present available information, tho some research work has been done along this line, and further experiments are under way. The commercial cultivation of Blue Flag is considered practical and pro-

fitable under present conditions, but the greatest per-cent of the drug now on the market is gathered in the wild state by root diggers, the majority of whom in their lack of knowledge seem to gather "anything at anytime", which accounts in part for the quality of the crude drug now offered. To meet requirements Blue Flag must consist of the rhizomes of *I. versicolor* gathered in the fall, deprived of the rootlets and carefully air dried.

Despite the information of interest and value now available in books of medicine and pharmacognocoy, there is much yet to be done on the subject of *Iris* as a crude drug; and we await further developments.

List of the Fertility of *Iris* Varieties

A. J. Bliss.

The following notes were received from Mr. Bliss just too late for the last Bulletin and should be considered in connection with Miss Sturtevant's notes on the same subject. Ed.

I don't know if the grouping is much good after all. It represents the results of crosses that I made. But I am very inclined to make "difficult" crosses, rather than "likely" crosses, and possibly many varieties would be found in higher groups if tested differently, i. e. by crossing "easy",—*variegata* x *variegata*, and *pallida* x *pallida*. The pollen fertility is also very hazy, it would have taken me very long to lock up all pollen crosses as my crosses are all listed under the name of the seed parents.

GROUP I. 90 % infertile, very rarely fertile, only with special crosses, and very few fertile seed in a pod. *germanica*, *Kochii*, *Rhein Nixe*, *Gules*. The pollen of *Kashmir White* and *Mercedes* looks infertile.

GROUP II. over 75% infertile. More generally infertile than Group I but still with few seeds in a pod.

Albicans, *germanica alba*, *Black Prince*, *Ed. Michel*, *Eldorado*, *Isoline*, *Monsignor*, *Azure*, *Dimity*, *Dusky Maid*, *Marsh Marigold* (over 50% fertile with *variegata*). *Syphax*, *Tartarin*, *Tristram*, *Du Guesclin*, and *Tamar* are 25% fertile as pod parents but very rarely have fertile pollen. *Flavescens*, *Jacquesiana*, *Arnols*, *Sybil*, *Sweet Lavender*, are in the same class but produce a greater percentage of pods.

In *Perfection*, *Thorbeck*, *Sambucina*, *Cretonne*, *Lancelot*, both as pod and pollen parents we find only 25% fertility.

GROUP III. over 50% infertile. (a) Fully fertile with certain crosses but infertile with over 50%; (b) Fertile (partially) in most crosses but less than 50% of seed in a pod; (a) *macrantha*, *Benbow*, *Do-minion*, *Diadem* (pollen less fertile).

(b) *Gracchus*, *Innocenza*, *Mme. Pacquette*, *Mrs. H. Darwin* pollen less fertile, *Mrs. Neubronner*, *Mrs. Ruthe*, *Dalmatica*, *Princess Beatrice*, *Queen of May*, *Cordelia*, *Florence Barr*, *Dora Longdon*, *Dalila* questionable pollen.

Knysna, *Ann Page*, and *Mlle. Schwartz* are more fertile as pod parents.

GROUP IV. over 50% fertile. *Albert Victor*, *Mme. Chereau*, *Maori King*, *Ciengialti*, *Leonidas*, *Trojana superba*, *Assuarez*, *Alacazar*, *Dalmarius*, *Hermione*, *Miranda*, *Paulina*, *Camelot*, and *Speedwell*.

The Wonderful Iris Mother of Pearl

No doubt the readers of the Bulletin have heard of Iris Mother of Pearl, one of Miss Sturtevant's new seedlings. It was my good fortune to secure the entire stock and control of this remarkable new iris a few years ago, and I am now offering a few plants of it for the first time. It is a remarkable variety, over 4 ft. tall, entire flower a beautiful Mother of Pearl color, sweet scented, and very floriferous. Personally I consider it the finest iris I have yet seen and I have seen most of the best. Send for circular giving fuller particulars and start with this wonderful Iris now while it will grow in value quickest.

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